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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,177	07/10/2001	Tomotaka Fujisawa	09792909-5099	7492

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EXAMINER

ROSE, KIESHA L

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/902,177

Applicant(s)

FUJISAWA ET AL.

Examiner

Kiesha L. Rose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-4 and 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 1/7/03 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 1-7-03 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the amendment filed 7 January 2003.

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 7 January 2003 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (Figure 1b).

Applicant's Prior Art (Fig. 1b) discloses a photodiode comprising a first conductivity type first semiconductor layer (11), first conductivity type second semiconductor layer (substrate)(10), a second conductivity type semiconductor layer (12) formed at a surface layer portion of semiconductor layer (11) and a depletion layer (V), where the end face of the layer on the side of the first semiconductor layer (11) are

within no more than a predetermined distance. In regards to the sensitivity of the photodiode to light of a first wavelength and to a second wavelength which is different from the first are made substantially the same, since the Applicant's Prior Art (Fig. 1b) has the same structural configuration as the claimed invention then it would be inherent that the device would spread the depletion layer to a depth of 2-7 or 3-6 μm and have the same sensitivity if biased the same. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made inverse bias the photodiode to make the sensitivity of the two wavelengths to be substantially the same and have the depletion layer at a depth of 2-7 or 3-6 μm deep.

Claims 1, 3-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. (U.S. Patent 5,886,374).

Sakamoto discloses a photodiode (Fig. 4) that contains a first conductivity type second semiconductor substrate (41) with a concentration of 10^{17} , a first conductivity type semiconductor layer (42) formed on substrate, a second conductivity type semiconductor layer (43) formed on first conductivity type layer (42), where the first conductivity type layer has a concentration lower than the substrate. In regards to the sensitivity of the photodiode to light of a first wavelength and to a second wavelength which is different from the first are made substantially the same, since the Sakamoto has the same structural configuration as the claimed invention then it would be inherent that the device would spread the depletion layer to a depth of 2-7 or 3-6 μm , the distance between the end face of the depletion layer is 3 μm or less and have the same sensitivity if biased the same. Therefore it would have been obvious to one of ordinary

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skill in the art at the time the invention was made inverse bias the photodiode to make the sensitivity of the two wavelengths to be substantially the same, end face of the depletion layer is $3\text{ }\mu\text{m}$ or less and have the depletion layer at a depth of 2-7 or 3-6 μm deep.

Response to Arguments

Applicant's arguments with respect to claims 1,3-4 and 6-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 703-605-4212. The examiner can normally be reached on M-F 8:30-6:00 off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KR
KLR

February 27, 2003

AMIR ZARABIAN
SUPERVISOR
TECHNOLOGY CENTER
FEB 28 2003